

## Stand Up Diaper

### FIELD OF THE INVENTION

This invention relates to the field of diapers for retaining accidental or uncontrolled bodily excretions. The diaper of this invention is directed to quick changing of an infant while the infant is standing or in the erect position.

### BACKGROUND OF THE INVENTION

The modern disposable diaper follows the design of the older cloth diaper. Currently, the diaper is generally rectangular in shape with a front panel and a back panel connected by a crotch portion defined by two opposing arcuate cut-outs approximately midway between the ends.

In use, the diaper is opened flat and the baby is laid upon the back panel of the diaper with the legs placed in the arcuate cut-outs. The front panel of the diaper is moved upwardly so that the side edges of the front panel contact the side edges of the back panel. There are fasteners on either the front panel or the back panel or both panels, usually adhesive strips, that are used to secure the diaper together about the baby's waist.

This type of diaper has at least two prerequisites, first, an adequate space for laying the baby down and second,

1 a cooperative subject. If either or neither of these  
2 prerequisites is present, changing the subject's diaper can  
3 be extremely difficult for all concerned. Further, more time  
4 is necessary for such a diaper change. And the resulting fit  
5 of the diaper may be less than perfect because of  
6 misalignment of the fasteners.

7 Also, there comes a time in the development of the baby  
8 when standing is preferable to sitting or lying down. This  
9 period may last from age 6 months until the baby is potty  
10 trained.

11 What is needed in the art is a less complex diaper that  
12 can be applied quickly while the subject is standing up.

13  
14 DESCRIPTION OF THE PRIOR ART

15 U. S. Patent No. 4,835,795 issued to Lonon discloses  
16 a sanitary brief for women with a crotch portion releasably  
17 fastened, at one end, to the body of the brief allowing use  
18 of the bathroom facilities without the necessity of removing  
19 the brief. In one embodiment, the brief has an open seam  
20 extending between the waistband and a leg opening held  
21 together by a releasable fastening, such as VELCRO. The  
22 openable side seam is for ease in washing and ironing.

23 Meisels, U. S. Patent No. 5,103,501, discloses  
24 disposable underwear for traveling. The waistband of the

1 man's brief and the woman's panty is discontinuous to allow  
2 donning of the garment without tearing. The waistband is  
3 provided with magnets for closing the seam.

4 U. S. Patent No. 4,227,530 to Schatz discloses a  
5 disposable diaper with adhesive fasteners on both side seams.  
6 However, after the diaper is initially fitted to the wearer,  
7 one side fastener is capable of being opened without  
8 destroying the diaper. This allows for an inspection of the  
9 interior of the diaper or a later re-fitting of the waistband  
10 of the diaper.

#### 11 12 SUMMARY OF THE INVENTION

13 Accordingly, it is an objective of the instant invention  
14 to teach a diaper having one open side seam and one pre-  
15 formed leg opening. The open side seam has cooperating  
16 fasteners for securing the diaper about the waist of the  
17 infant forming a self supporting diaper.

18 It is a further objective of the instant invention to  
19 teach a diaper capable of a quick application by inserting an  
20 infant's leg through the pre-formed leg opening thereby  
21 securing the diaper about the baby. The open side seam is  
22 then fastened together adjusting the waistband and the other  
23 leg opening to fit the baby.

24 It is yet another objective of the instant invention to

1 teach the diapering of an infant while the infant is standing  
2 or partially erect.

3 It is a still further objective of the invention teach  
4 the diaper of this invention having an liquid impermeable  
5 outer sheet, a liquid permeable inner cover sheet, an  
6 absorbent pad confined between the outer and inner sheets,  
7 and elastic margins forming a resilient waistband and leg  
8 openings.

9 Other objects and advantages of this invention will  
10 become apparent from the following description taken in  
11 conjunction with the accompanying drawings wherein are set  
12 forth, by way of illustration and example, certain  
13 embodiments of this invention. The drawings constitute a  
14 part of this specification and include exemplary embodiments  
15 of the present invention and illustrate various objects and  
16 features thereof.

17  
18 BRIEF DESCRIPTION OF THE FIGURES

19 FIG. 1 shows a perspective of the diaper of this  
20 invention as applied to an infant; and

21 FIG. 2 shows a perspective of a modification of the  
22 diaper of FIG. 1.

1     DETAILED DESCRIPTION OF THE INVENTION

2             The diaper 10 may be constructed of conventional  
3     disposable elements, such as a pervious inner layer 11 for  
4     contacting the body of the infant and an outer layer 12 that  
5     is impermeable to liquid for protecting the outer garments.  
6     An absorbent pad 13 is confined between the outer and inner  
7     layers. The pervious inner layer 11 may be nonwoven material  
8     that may be absorbent or may be hydrophobic. The hydrophobic  
9     material will act to wick urine from the baby's skin into the  
10    absorbent pad. In one embodiment, the inner layer may be  
11    slightly larger than the pad 13 and connected to the outer  
12    layer about the periphery of the pad.

13            The outer layer 12 is a thin film of a plastic polymer  
14    which is impermeable to liquids however, may have the ability  
15    to transmit gases for ventilation. The film is supple to  
16    allow for repeated creasing and stretching during the  
17    wearer's activities. In some cases the film may be re-  
18    enforced with woven or nonwoven yarns or threads embedded in  
19    the film. In one embodiment, the film may be slightly larger  
20    than the absorbent pad and connected to the inner layer about  
21    the periphery of the absorbent pad.

22            Usually, the inner and outer layers are substantially  
23    the same size and shape. The absorbent pad 13 usually is of  
24    smaller dimensions than the inner and outer layers. The pad

1 may be a cellulosic batt of fibers 14. In some instances,  
2 the batt may incorporate super absorbent materials, such as  
3 starches or other polymers. The batt may be re-enforced by  
4 strands or yarns and may have patterns of compressed areas to  
5 direct the excretions into the interior of the pad. The pad  
6 may be secured to either the inner or outer layer, or both,  
7 or neither. However, the pad may be held in place by the  
8 bonding 15 of the inner and outer layers about the periphery  
9 of the pad. The bonding 15 may include substantially the  
10 entire area of contact between the inner and outer layers.

11 In another embodiment, the entire diaper may be made of  
12 materials, such as cloth and rubber sheeting, that are  
13 capable of repeated cleaning and use.

14 The front panel 16 is shaped to cover the entire surface  
15 of the wearer's abdomen from the waistband 19 to the crotch  
16 20 and from side to side. The back panel 17 is likewise  
17 sized to cover the posterior of the wearer from the waistband  
18 21 to the crotch and from side to side. The side juncture 18  
19 of the front and back panels is an integral union.

20 The front and back panels are joined by a crotch portion  
21 20 having arcuate edges 22 and 23. The arcuate edges 22 and  
22 23 form the periphery of the leg openings 24 and 25. The  
23 crotch portion 20 may be formed as an integral portion of the  
24 front and back panel, as shown, or it may be attached to the

front and back panel, respectively, by a permanent seam (not shown).

The side juncture 18, shown in FIGS. 1 and 2, along with the arcuate edge 22 of the crotch portion forms a permanent leg opening 24. While shown on the right side of the diaper, the permanent leg opening may be on either side of the diaper. The side juncture 18 may be formed by a continuous front and back panel, as shown in FIG. 1, or by a permanent seam 26, shown in FIG. 2.

The opposite side 27 of the diaper is formed by the free ends of the front panel 16 and back panel 17. In FIG. 1, the front panel 16 has an attached fastener, such as a VELCRO tab 28, extending outwardly generally parallel with the waistband. The back panel 17 has a cooperating VELCRO patch, not shown, extending from the free end along the waistband. When these cooperating parts are brought together an adjustable and releasable diaper waistband is completed. Rather than VELCRO, the cooperating fasteners may be adhesive tabs, or hooks-and-loops, or buttons-and-button holes, or the like. The fasteners may have an elastic portion for greater flexibility in waistband adjustment.

In FIG. 2 the back panel 17 has an attached fastener, shown as an adhesive tab. The tab 29 has a split 30 which allows the fastener to more closely define the leg opening.

1 The adhesive tab is brought forward and adhered to the  
2 impermeable outer layer in the area of the waistband. The  
3 lower portion 31 of the tab adheres to the front panel in the  
4 area of the leg opening. Of course, this fastener 29 may be  
5 of other constructions, as described above.

6 As shown in FIG. 1, the leg openings may be provided  
7 with elastic inserts 32 to provide a closer and more secure  
8 fit about the legs of the wearer. As shown in FIG. 2, the  
9 waist band and the leg openings are provided with elastic  
10 inserts 33 and 34. Of course, either the leg openings or the  
11 waistband or neither may be provided with elastic.

12 This diaper, with the permanent leg opening, facilitates  
13 changing the diaper because the insertion of the wearer's leg  
14 into the permanent leg opening secures the diaper to the  
15 infant. By merely bringing the other free ends of the diaper  
16 together and manipulating the single fastener, the diaper is  
17 fitted and adjusted to the individual. If the diaper change  
18 must be made in confined space or with a recalcitrant infant,  
19 the process may take place while the infant is standing or in  
20 a nearly standing position.

21 It is to be understood that while a certain form of the  
22 invention is illustrated, it is not to be limited to the  
23 specific form or arrangement of parts herein described and  
24 shown. It will be apparent to those skilled in the art that



various changes may be made without departing from the scope  
of the invention and the invention is not to be considered  
limited to what is shown and described in the specification  
and drawings.

continued